



# La Cueva High School team takes top award in 24th New Mexico Supercomputing Challenge

April 22, 2014

## Modeling Tree Growth and Resource Use with Applications

LOS ALAMOS, N.M., April 22, 2014—The dynamic duo of Eli Echt-Wilson and Albert Zuo from La Cueva High in Albuquerque, proposed a unique model that simulates deciduous tree growth at the level of individual branches and leaves based on underlying biological processes. Their project, called *Modeling Tree Growth and Resource Use with Applications* won the top award at the 24th New Mexico Supercomputing Challenge Tuesday at Los Alamos National Laboratory.

“The goal of the yearlong event is to teach student teams how to use powerful computers to analyze, model, and solve real-world problems, said David Kratzer of Los Alamos’ High Performance Computer Systems group, and executive director of the Supercomputing Challenge. “Participating students improve their understanding of technology by developing skills in scientific inquiry, modeling, computing, communications, and teamwork.”

Second place winner and four-time finalist winner, Cole Kendrick of Los Alamos High School developed a computer model to investigate the formation and life cycle of classical novae. His project is called *3D Hydrodynamic Simulation of Classical Nova Explosions*.

Third place winners Ian Rankin, Ahmed Muhyi and Sophia Sanchez-Maes from Las Cruces YWiC (Young Women in Computing) created a computational model of the growth dynamics and neutral lipid synthesis of green microalgae. Their project is entitled *Maximize lipid output and biomass production of algae in open pond batch systems for biofuel synthesis*.

A complete list of all winning student teams is on the [New Mexico Supercomputing Challenge webpage](#). Read all the [student reports](#) online.

The Supercomputing Challenge is open to any New Mexico high-school, middle-school or elementary-school student. More than 240 students representing 70 teams from schools around the state spent the school year researching scientific problems, developing sophisticated computer programs, and learning about computer science with mentors from the state’s national laboratories and other organizations. All the finalist

teams received plaques for their schools, a large banner suitable for hanging at their schools and other gifts.

More than \$40,700 in individual scholarships were awarded at the Supercomputing Challenge Awards Expo on Tuesday at Los Alamos, including \$20,000 from the Laboratory's Computer, Computational and Statistical Sciences Division. Many other awards range from random \$100 gifts for finishing the academic marathon to teamwork, research, logo for next year and teacher appreciations.

The Supercomputing Challenge is sponsored by Los Alamos National Laboratory and Los Alamos National Security, LLC. A complete list of sponsors and supporters of the Challenge is on the website.

About the [Supercomputing Challenge](#)

Founded in 1990, the New Mexico Supercomputing Challenge is a nonprofit educational organization that sponsors an annual computational science competition for middle and high school students in New Mexico.

Since its inception, the Supercomputing Challenge has engaged more than 9,000 New Mexico students in computational science projects that prepare them for future endeavors in many science and high-technology fields, and past participants have succeeded in private industry and national laboratories. Major funding for the Supercomputing Challenge comes from national laboratories, local and national businesses, and individual donors.

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